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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No. 10/500,343	Applicant(s) TOKUTAKE ET AL.	
	Examiner Tayan Patel, Esq.	Art Unit 1753	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 24 June 2004.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-20 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-20 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 24 June 2004 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date <u>6/24/2004</u> . | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Claim Rejections - 35 USC § 112/ § 101

1. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

35 U.S.C. 101 reads as follows:

Whoever invents or discovers any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof, may obtain a patent therefor, subject to the conditions and requirements of this title.

2. Claim 5 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claim 5 provides for the use of the ozonizer, but, since the claim does not set forth any steps involved in the method/process, it is unclear what method/process applicant is intending to encompass. A claim is indefinite where it merely recites a use without any active, positive steps delimiting how this use is actually practiced.

Claim 5 is rejected under 35 U.S.C. 101 because the claimed recitation of a use, without setting forth any steps involved in the process, results in an improper definition of a process, i.e., results in a claim which is not a proper process claim under 35 U.S.C. 101. See for example *Ex parte Dunki*, 153 USPQ 678 (Bd.App. 1967) and *Clinical Products, Ltd. v. Brenner*, 255 F. Supp. 131, 149 USPQ 475 (D.D.C. 1966).

Claim Rejections - 35 USC § 103

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

5. Claims 1 & 4-6 are rejected under 35 U.S.C. 103(a) as being unpatentable over Erni et al (US 4461744) in view of Tanabe et al (US 6132280).

As to claims 1, 4 and 6, Erni et al discloses an ozone generation process comprising an apparatus for generating ozone by an electric discharge wherein oxygen-containing gas passes through a cylindrical discharge space (See column 1, lines 6-19). However, Erni et al fails to disclose including moisture of .05 – 40 ppm, oxygen of a purity of at least 99.9%, and an ozonizer density of at least 60 g/Nm³.

Tanabe et al discloses generating ozone comprising supplying a gas (oxygen – See column 13, lines 36-38) having a purity of 90 to 99.9%, preferably 99.0 to 99.9% and a moisture content preferably 10 ppm or less, and more preferably 1 ppm or less

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(See columns 9-10, lines 58-15) to an ozonizer (See column 13, lines 25-28) where the ozone gas that is produced has a density preferably of at least 100 g/m^3 , and even more preferably 150 g/m^3 (See column 13, lines 30-37) in order to keep the interior of the chamber at normal pressure (See column 9, lines 58-67).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to use the moisture content, oxygen purity and ozonizer density in Tanabe et al in the process of Erni et al in order to keep the interior of the chamber at normal pressure.

As to claim 5, no further limiting steps are recited, therefore, claim 5 continues to read on the limitations as provided in modified Erni et al above.

6. Claims 2-3 and 19-20 are rejected under 35 U.S.C. 103(a) as being unpatentable over Erni et al (US 4461744) in view of Tanabe et al (US 6132280) in view of Sato (US 5599713).

As to 2-3 and 19-20, Erni et al discloses an ozone generation process comprising an apparatus for generating ozone by an electric discharge wherein oxygen-containing gas passes through a cylindrical discharge space (See column 1, lines 6-19). However, Erni et al fails to disclose adding moisture of .05 – 40 ppm, oxygen of a purity of at least 99.9%, and an ozonizer density of at least 60 g/Nm^3 .

Tanabe et al discloses generating ozone comprising supplying a gas (oxygen – See column 13, lines 36-38) having a purity of 90 to 99.9%, preferably 99.0 to 99.9% and a moisture content preferably 10 ppm or less, and more preferably 1 ppm or less (See columns 9-10, lines 58-15) to an ozonizer (See column 13, lines 25-28) where the

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ozone gas that is produced has a density preferably of at least 100 g/m^3 , and even more preferably 150 g/m^3 (See column 13, lines 30-37) in order to keep the interior of the chamber at normal pressure (See column 9, lines 58-67).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to use the moisture content, oxygen purity and ozonizer density in Tanabe et al in the process of Erni et al in order to keep the interior of the chamber at normal pressure.

However, modified Erni et al fails to explicitly disclose adding moisture to oxygen gas to maintain the purity and moisture content within the range of .05-40 ppm.

Sato discloses an apparatus for purifying contaminated air (includes oxygen) prior to entering an ozonizer via a humidifier, 19, (moisture adjusting device which can add/subtract moisture in a gas stream) (See column 1, lines 30-42; See also column 3, lines 50-60) in order to humidify the contaminated air (See column 12, lines 59-63).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to add moisture to keep it within a desired range via a humidifier in Sato in the method of modified Erni et al in order to humidify the contaminated air.

7. Claims 7-8 are rejected under 103(a) as being unpatentable over Erni et al (US 6122280) in view of Sato (US 5599713).

Erni et al discloses an ozone generation apparatus for generating ozone by an electric discharge wherein oxygen-containing gas passes through a cylindrical discharge space (See column 1, lines 6-19). However, Erni et al fails to disclose a gas

supply system and a moisture-adjusting device interposed in the gas supply system, for adjusting a moisture volume in the source gas.

Sato discloses an ozonizer, 109 (See figure 16; See also column 12, lines 46-47); an air supply means/air pump, 17, for supplying air (See figure 1; See also column 4, lines 1-13); and a humidifier, 19 (See figure 1; See also column 3, lines 50-67) in order to purify contaminated air (See column 1, lines 1-13).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to use the gas supply system and moisture-adjusting device in Sato in the apparatus of Erni et al in order to purify contaminated air.

8. Claim 9 is rejected under 35 U.S.C. 103(a) as being unpatentable over Erni et al (US 6122280) in view of Sato (US 5599713) as applied to claim 7 above, and further in view of Tanabe et al (US 6132280).

As to claim 9, Sato discloses all of the claimed limitations as discussed in claim 7 above, further disclosing an ozonizer (See figure 16; See also column 12, lines 46-47) yet fails to disclose the oxygen gas having moisture of .05-40 ppm.

Tanabe et al discloses an apparatus comprising an ozonizer (See column 13, lines 25-28) wherein the oxygen gas has a moisture content preferably 10 ppm or less, and more preferably 1 ppm or less to an ozonizer (See column 13, lines 25-28) in order to keep the interior chamber at normal pressure. See columns 9-10, lines 58-15).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to use the moisture content in Tanabe et al in the apparatus of Sato in order to keep the interior chamber at normal pressure.

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9. Claims 10, 12, 14-18 are rejected under 35 U.S.C. 103(a) as being unpatentable over Erni et al (US 6122280) in view of Sato (US 5599713) in view of Allen et al (US 5815637).

As to claims 10, Erni et al discloses an ozone generation apparatus for generating ozone by an electric discharge wherein oxygen-containing gas passes through a cylindrical discharge space (See column 1, lines 6-19) and a tube, 4, provided with an electrically conductive layer, 5, of aluminum (the deposited layer constitutes resin). However, Erni et al fails to disclose a humidifier.

Sato discloses an apparatus for purifying contaminated air (includes oxygen) prior to entering an ozonizer via a humidifier, 19, (moisture adjusting device which can add/subtract moisture in a gas stream) (See column 1, lines 30-42; See also column 3, lines 50-60) in order to purify contaminated air (See column 1, lines 1-13).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to use the gas supply system and moisture-adjusting device in Sato in the apparatus of Erni et al in order to purify contaminated air.

However, modified Erni et al fails to disclose the humidifier comprising a water tank of pure water and the tube dipped into the pure water in the water tank, for distributing the oxygen gas therein and a heater for controlling temperature in the water tank.

Allen et al discloses a humidity controlling system in semiconductors (See abstract) comprising a humidifier water tank, 12, having a water level, 13, and a steam distribution tube, 18, with nozzles 20, (See column 3, lines 4-16) in order for the

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production of a stable level of water vapor production (See column 1, lines 22-38) (water vapor is desirable in modified Erni et al given the dependent relationship with ozone production).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to use the water tank in Allen et al in the apparatus of modified Erni et al in order for the production of a stable level of water vapor.

As to claim 12, modified Erni et al discloses all of the claimed limitations as discussed with respect to claim 10 above, yet fails to disclose a heater.

Allen et al discloses a heater component, 16, (See column 3, lines 4-16) in order for the production of a stable level of water vapor production (See column 1, lines 22-38) (water vapor is desirable in modified Erni et al given the dependent relationship with ozone production).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to use the heater in Allen et al in the apparatus of modified Erni et al in order for the production of a stable level of water vapor production

As to claim 14, Erni et al discloses an ozone generation apparatus for generating ozone by an electric discharge wherein oxygen-containing gas passes through a cylindrical discharge space (See column 1, lines 6-19) and a tube, 4, provided with an electrically conductive layer, 5, of aluminum (the deposited layer constitutes resin). However, Erni et al fails to disclose a humidifier.

Sato discloses an apparatus for purifying contaminated air (includes oxygen) prior to entering an ozonizer via a humidifier, 19, (moisture adjusting device which can

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add/subtract moisture in a gas stream) (See column 1, lines 30-42; See also column 3, lines 50-60), in order to purify contaminated air (See column 1, lines 1-13).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to use the gas supply system and moisture-adjusting device in Sato in the apparatus of Erni et al in order to purify contaminated air.

However, modified Erni et al fails yet fails to disclose the humidifier comprising a water tank of pure water and the resin tube dipped into the pure water in the water tank, for distributing the oxygen gas therein and a heater for controlling temperature in the water tank .

Allen et al discloses a humidity controlling system in semiconductors (See abstract) comprising a humidifier water tank, 12, having a water level, 13, a heater component, 16, and a steam distribution tube, 18, with nozzles, 20, (See column 3, lines 4-16) in order for the production of a stable level of water vapor production (See column 1, lines 22-38) (water vapor is desirable in modified Erni et al given the dependent relationship with ozone production).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to use the water tank in Allen et al in the apparatus of modified Erni et al in order for the production of a stable level of water vapor.

However, modified Erni et al still fails to disclose a plurality of resin tubes bound together.

It would have been obvious to one of ordinary skill in the art at the time the invention was made to use a plurality of resin tubes because the moisture permeability

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of the system will increase & therefore provide for a purer gas prior to entering the ozonizer.

As to claim 15, modified Erni et al discloses all of the claimed limitations as discussed with respect to claim 14 above, yet fails to disclose a specific tube length and shape.

It would have been obvious to one of ordinary skill in the art at the time the invention was made to change the shape and length of the tube in order to contour to the dimensions of the water tank/vessel. See MPEP 2144.04 IV – Change in Size or Shape.

As to claim 16, modified Erni et al discloses all of the claimed limitations as discussed with respect to claim 14 above, yet fails to disclose the vessel configured to distribute pure water therein.

Allen et al further discloses water distributed to the tank, 12, via line 50 (See figure 1; See also column 1, lines 39-63) in order to always exceed the demand of the steam humidifier tank so that the level in the steam humidifier tank remains substantially constant at all times (See column 3, lines 47-58).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to use the conduit to the water tank in Allen et al in the apparatus of modified Erni et al in order to always exceed the demand of the steam humidifier tank so that the level in the steam humidifier tank remains substantially constant at all times.

As to claims 17-18, Erni et al discloses an ozone generation apparatus for generating ozone by an electric discharge wherein oxygen-containing gas passes

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through a cylindrical discharge space (See column 1, lines 6-19). However, Erni et al fails to disclose a humidifier.

Sato discloses an apparatus for purifying contaminated air (includes oxygen) prior to entering an ozonizer via a humidifier, 19, (moisture adjusting device which can add/subtract moisture in a gas stream) (See column 1, lines 30-42; See also column 3, lines 50-60), in order to purify contaminated air (See column 1, lines 1-13).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to use the gas supply system and moisture-adjusting device in Sato in the apparatus of Erni et al in order to purify contaminated air.

However, modified Erni et al yet fails to disclose a device for adding pure water to the oxygen gas distributed through a pipe.

Allen et al discloses a water supply source, 60, of preferably deionized water, connected to a conduit or tube, 50, (carrier of oxygen) connected between the steam humidifier tank inlet port, 14, and overflow inlet port, 31, in order to always exceed the demand of the steam humidifier tank so that the level in the steam humidifier tank remains substantially constant at all times. See column 3, lines 47-57.

It would have been obvious to one of ordinary skill in the art at the time the invention was made to use the device for adding water to the oxygen gas through a pipe in Allen et al in the apparatus of modified Erni et al in order to always exceed the demand of the steam humidifier tank so that the level in the steam humidifier tank remains substantially constant at all times.

10. Claim 11 is rejected under 35 U.S.C. 103(a) as being unpatentable over Erni et al (US 4461744) in view of Sato (US 5599713) in view of Allen et al (US 5815637) as applied to claim 10 above and further in view of Nutt (US 3679810).

As to claim 11, modified Erni et al discloses all of the claimed limitations as discussed with respect to claim 10 above, yet fails to disclose the resin tube having moisture permeability.

Nutt discloses a system for maintaining a reduced level of relative humidity (See abstract) wherein the tube has moisture-permeability (See claim 1 and 5) in order to absorb moisture that passes through the tube walls (See abstract).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to use the moisture permeable tube in Nutt in the apparatus of modified Erni et al in order to absorb moisture that passes through the tube walls.

11. Claim 13 is rejected under 35 U.S.C. 103(a) as being unpatentable over Erni et al (US 6122280) in view of Sato (US 5599713) in view of Allen et al (US 5815637) as applied to claim 10 above, and further in view of Kennedy (US 5803139).

As to claim 13, modified Erni et al discloses all of the claimed limitations as discussed with respect to claim 10 above, wherein Erni et al discloses an ozone generator (See column 1, lines 5-18) yet fails to disclose an agitator in the tank.

Kennedy discloses an ozone generator, 36, wherein the water tank, 32, comprises an agitator, 74, connected to the ozone inlet line, 76 in order to control the amount of ozone drawn from the ozone generator (See column 7, lines 15-30; See also figure 4).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to use the agitator in Kennedy in the apparatus of modified Erni et al in order to control the amount of ozone drawn from the ozone generator.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Tayan Patel, Esq. whose telephone number is (571) 272-9806. The examiner can normally be reached on Monday-Thursday, 8 AM-6 PM EST.


If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Alexa Neckel can be reached on (571) 272-1446. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

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